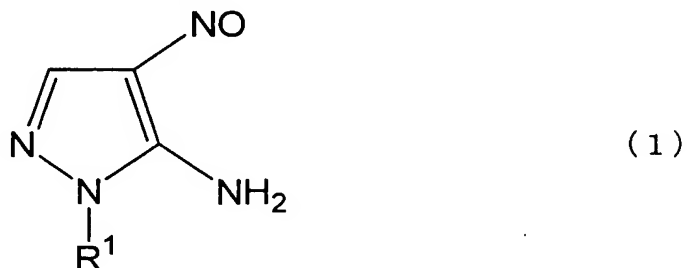


Claims:

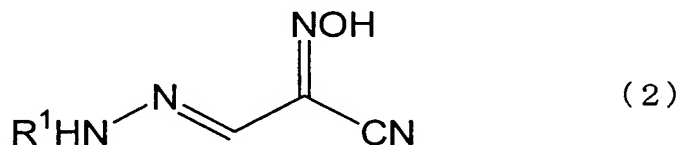
1. A process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole compound represented by the formula (1):



5

wherein R¹ represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group each of which may have a substituent(s),

10 which comprises cyclizing a 3-hydrazono-2-hydroxyimino-propionitrile compound represented by the formula (2):



wherein R¹ has the same meaning as defined above.

2. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 1, wherein R¹ is an alkyl group having 1 to 4 carbon atoms substituted by a hydroxyl group.

3. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 1, wherein R¹ is a hydroxyethyl group.

20 4. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to any one of Claims 1 to 3, wherein the cyclization reaction is carried out in a solvent.

25 5. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 4, wherein the solvent is at least one selected from the group consisting of water; mineral acids; alcohols; nitriles; aliphatic hydrocarbons; halogenated aliphatic hydrocarbons; aromatic

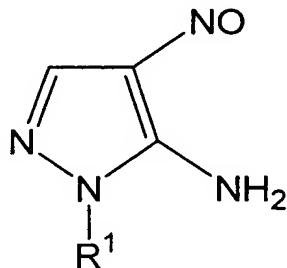
hydrocarbons; halogenated aromatic hydrocarbons; ethers; carboxylic acids; amides; sulfoxides; and carboxylic acid esters.

6. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 4, wherein the solvent is at least one selected from the group consisting of water; hydrochloric acid, sulfuric acid; methanol, ethanol, n-propyl alcohol, isopropyl alcohol, n-butyl alcohol, isobutyl alcohol, sec-butyl alcohol, t-butyl alcohol; acetonitrile, propionitrile; hexane, heptane; methylene chloride, chloroform, carbon tetrachloride; benzene, toluene; chlorobenzene; diethyl ether, diisopropyl ether, tetrahydrofuran, dioxane; acetic acid, propionic acid; N,N-dimethylformamide, N,N-dimethylacetamide; dimethylsulfoxide; ethyl acetate, butyl acetate and ethyl propionate.

7. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to any one of Claims 4 to 6, wherein the solvent is used in an amount of 0.5 to 100 g based on 1 g of the 3-hydrazono-2-hydroxyiminopropionitrile compound.

8. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 1, wherein the reaction is carried out by mixing the 3-hydrazono-2-hydroxyiminopropionitrile compound and a solvent at a reaction temperature of -20 to 200°C under stirring.

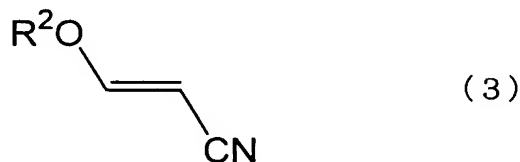
9. A process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole compound represented by the formula (1):



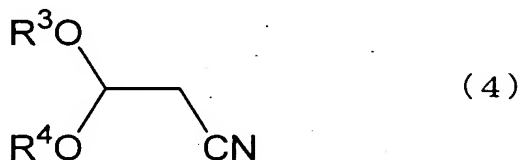
(1)

wherein R¹ represents a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group each of which may have a substituent(s),

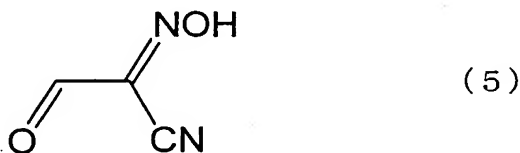
which comprises reacting a nitrosating agent with at least one nitrile compound selected from the group consisting of a 3-alkoxyacrylonitrile represented by the formula (3):



5 wherein R^2 represents an alkyl group having 1 to 4 carbon atoms,
and a 3,3-dialkoxypropionitrile represented by the formula (4):



10 wherein R^3 and R^4 may be the same or different from each other and each represent an alkyl group having 1 to 4 carbon atoms,
in the presence of water to obtain 2-hydroxyimino-3-oxo-propionitrile represented by the formula (5):



15 and then, reacting a hydrazine compound represented by the formula (6):



wherein R^1 has the same meaning as defined above.

20 10. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 9, wherein R^1 is an alkyl group having 1 to 4 carbon atoms substituted by a hydroxyl group.

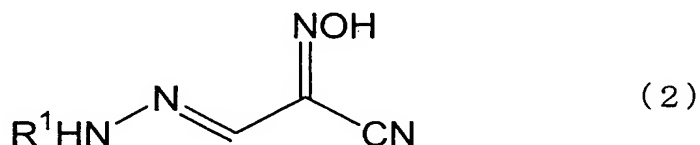
11. The process for preparing a 3-unsubstituted-5-amino-4-nitrosopyrazole according to Claim 9 or 10, wherein a cyclization reaction is carried out in a solvent.

12. The process for preparing a 3-unsubstituted-5-amino-4-

nitrosopyrazole according to any one of Claims 9 to 11,
 wherein the nitrosating agent is at least one compound
 selected from the group consisting of nitrous acid;
 nitrosyl halides; nitrosyl carboxylates; and nitrosyl
 sulfate.

13. The process for preparing a 3-unsubstituted-5-amino-4-
 nitrosopyrazole according to any one of Claims 9 to 11,
 wherein the nitrosating agent is at least one compound
 selected from the group consisting of nitrous acid;
 nitrosyl fluoride, nitrosyl chloride, nitrosyl bromide,
 nitrosyl iodide; nitrosyl formate, nitrosyl acetate; and
 nitrosyl sulfate.

14. A 3-hydrazono-2-hydroxyiminopropionitrile compound
 represented by the formula (2):

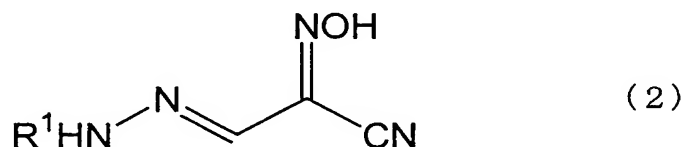


wherein R^1 represents a hydrogen atom, an alkyl
 group, an aryl group or a heterocyclic group each of
 which may have a substituent(s).

15. The 3-hydrazono-2-hydroxyiminopropionitrile compound
 according to Claim 14, wherein R^1 is an alkyl group having
 1 to 4 carbon atoms substituted by a hydroxyl group.

16. The 3-hydrazono-2-hydroxyiminopropionitrile compound
 according to Claim 14; wherein R^1 is a hydroxyethyl group.

17. A process for preparing a 3-hydrazono-2-hydroxyimino-
 propionitrile compound represented by the formula (2):



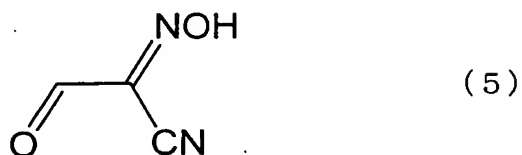
wherein R^1 represents a hydrogen atom, an alkyl
 group, an aryl group or a heterocyclic group each of
 which may have a substituent(s),

which comprises reacting a hydrazine compound represented

by the formula (6):

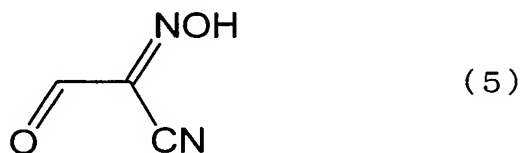


wherein R^1 has the same meaning as defined above,
with 2-hydroxyimino-3-oxopropionitrile represented by the
5 formula (5):

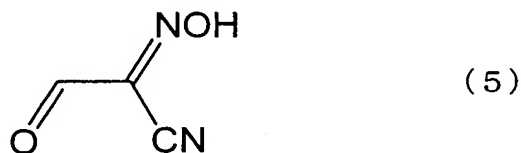


18. The process for preparing a 3-hydrazono-2-hydroxy-
iminopropionitrile compound according to Claim 17; wherein
 R^1 is an alkyl group having 1 to 4 carbon atoms substituted
10 by a hydroxyl group.

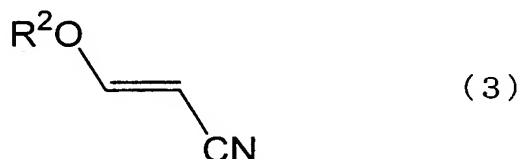
19. 2-Hydroxyimino-3-oxopropionitrile represented by the
formula (5):



20. A process for preparing 2-hydroxyimino-3-oxopropio-
15 nitrile represented by the formula (5):

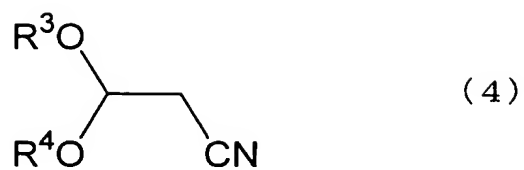


which comprises reacting a nitrosating agent with at least
one nitrile compound selected from the group consisting of
a 3-alkoxyacrylonitrile represented by the formula (3):



20

wherein R^2 represents an alkyl group having 1 to 4
carbon atoms,
and a 3,3-dialkoxypropionitrile represented by the formula
(4):



wherein R^3 and R^4 may be the same or different from each other and each represent an alkyl group having 1 to 4 carbon atoms,

5 in the presence of water.